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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/005,325

11/12/2001

William C. Hurley

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03/03/2004

CORNING CABLE SYSTEMS LLC

P O BOX 489

HICKORY, NC 28603

EXAMINER

ARTMAN, THOMAS R

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/005,325

Applicant(s)

HURLEY ET AL.

Examiner

Thomas R Artman

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 28 is/are allowed.
- 6) ☒ Claim(s) 10, 12-27 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

The After-Final Amendment, filed January 21st, 2004, has been entered. Applicant's arguments, see the Response, filed January 21st, 2004, with respect to the rejection(s) of claim(s) 10 and 16 under 35 USC 102 and 103 have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Witt (US 6,445,859). Further, the indication of allowable subject matter, pertaining to claim 23, has also been withdrawn in view of the newly cited art.

Claim Objections

Claim 21 is objected to because of the following: antecedent basis is lacking for "binder thread" since the parent claim, claim 16, does not disclose a binder thread. It appears as though the dependency of claim 21 should be on claim 18, which is where a binder thread is first exclusively recited. For the purposes of expediting examination, the claim shall be examined upon these merits.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 23, 24 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Witt (US 6,445,859).

Regarding claim 23, Witt discloses an optical fiber cable (Fig.1), including:

- 1) at least one bundle of optical fibers (item 20) and a binder element (item 30) that keeps the optical fibers in at least one bundle,
- 2) an armor layer (item 90) surrounding at least one bundle and is adjacent to the bundle,
- and
- 3) the fiber optic cable excludes a cable jacket inside the armor layer.

With respect to claim 24, the fibers are non-tight buffered.

With respect to claim 27, there is a cable jacket (item 40) generally surrounding the armor layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 12, 13, 15, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witt and in view of Carter (US 5,165,003).

Regarding claim 10, Witt discloses an optical fiber cable (Fig.1), including:

- 1) at least one bundle of non-tight buffered optical fibers (item 20),
- 2) a separation layer (item 90) adjacent to and generally surrounding the at least one bundle,
- 3) a cable jacket (item 40) contacting at least a portion of the separation layer where the separation layer inhibits adhesion between the at least one bundle and the cable jacket, and
- 4) excluding a grease or grease-like composition being in contact with the at least one bundle that is used for water blocking.

Witt does not specifically disclose binder threads for encircling the fibers in order to maintain the individual bundles. Witt does state in col.2, lines 47-53, that the buffer tubes (item 30) are not necessary, and that such tubeless bundles are known in the art.

Carter teaches the use of binder threads for keeping non-tight buffered optical fibers in bundles (Fig.1, item 18). The use of the threads allows for a loose construction that prevents microbending losses, a better method for holding the optical fibers into bundles without

Art Unit: 2882

unraveling during splicing and other procedures, and a simple, efficient labeling system for distinguishing fiber bundles (col.5, line 49, to col.6, line 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Witt to substitute binder threads for buffer tubes in order to maintain the fibers in at least one bundle. This allows for the advantages of a loose construction that prevents microbending losses, a better method for holding the optical fibers into bundles without unraveling during splicing and other procedures, and a simple, efficient labeling system for distinguishing fiber bundles as taught by Carter.

With respect to claims 12 and 13, Carter's binder threads include a looper thread and needle thread that incorporate to encircle the optical fibers in a bundle and are secured to one another through the use of overlocked stitches.

With respect to claim 15, it is clear from the disclosure of Witt that the cable is intended for the use of a breakout cable, that is to say, a cable that is meant to be readily accessed for splicing, etc.

With respect to claims 25 and 26 and as stated above in the rejection of claim 10, it would have been obvious to one of ordinary skill in the art at the time the invention was made for Witt to substitute binder threads for buffer tubes in order to maintain the fibers in at least one bundle. This allows for the advantages of a loose construction that prevents microbending losses, a better method for holding the optical fibers into bundles without unraveling during

Art Unit: 2882

splicing and other procedures, and a simple, efficient labeling system for distinguishing fiber bundles as taught by Carter.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Witt and Carter as applied to claim 10 above, and in view of Lochkovic (US 5,561,730).

Witt and Carter do not disclose the use of silicone wax emulsion finishes for binder threads.

Lochkovic discloses the use of silicone layers as a friction reduction technique in fiber optic cables. This minimizes the damage of the fibers due to wear from excessive relative motion that occurs during installation and over a lifetime of service.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the cable of Witt, a dry cable, to have the binder threads as taught by Carter to be coated with a silicone wax emulsion finish as generally taught by Lochkovic such that the longevity of the fibers would be improved by adding such a friction reducing coating to the binder threads. In this way, wear between the fibers in the bundles and the binder threads is mitigated.

Claims 16 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witt in view of Blew (5,345,526).

Regarding claim 16, Witt discloses an optical fiber cable (Fig.1), including:

1) at least one bundle of non-tight buffered optical fibers (item 20) with a binder element (item 30) that maintains the fibers in the at least one bundle,

Art Unit: 2882

- 2) a cable jacket surrounding the at least one bundle (item 40),
- 3) a separation layer (item 90) that inhibits adhesion between the cable jacket and optical fiber bundle and is adjacent to the optical fiber bundles, and
- 4) excluding a grease or grease-like compound that is used to repel water.

Witt does not disclose the use of a central member.

Blew teaches the use of a central member (item 12) that provides strength and relieves stresses from the optical fibers. In this way, the optical fibers will last longer and perform better.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the fiber optic cable of Witt to have a central member as taught by Blew such that greater strength of the cable can be achieved while optical fiber performance and longevity is improved.

With respect to claim 22, Witt's separation layer is an armor layer.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witt and Blew as applied to claim 16 above, and in view of Carter.

Regarding claims 17 and 18, Witt does not specifically disclose binder threads for encircling the fibers in order to maintain the individual bundles. Witt does state in col.2, lines 47-53, that the buffer tubes (item 30) are not necessary, and that such tubeless bundles are known in the art.

Carter teaches the use of binder threads for keeping non-tight buffered optical fibers in bundles (Fig.1, item 18). The use of the threads allows for a loose construction that prevents

Art Unit: 2882

microbending losses, a better method for holding the optical fibers into bundles without unraveling during splicing and other procedures, and a simple, efficient labeling system for distinguishing fiber bundles (col.5, line 49, to col.6, line 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical fiber cable of Witt, using the central member of Blew, to substitute binder threads for buffer tubes in order to maintain the fibers in at least one bundle. This allows for the advantages of a loose construction that prevents microbending losses, a better method for holding the optical fibers into bundles without unraveling during splicing and other procedures, and a simple, efficient labeling system for distinguishing fiber bundles as taught by Carter.

With respect to claims 19 and 20, Carter's binder threads include a looper thread and needle thread that incorporate to encircle the optical fibers in a bundle and are secured to one another through the use of overlocked stitches.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Witt, Blew and Carter as applied to claims 16 and 18 above, and in view of Lochkovic.

Witt, Blew and Carter do not disclose the use of silicone wax emulsion finishes for binder threads.

Lochkovic discloses the use of silicone layers as a friction reduction technique in fiber optic cables. This minimizes the damage of the fibers due to wear from excessive relative motion that occurs during installation and over a lifetime of service.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the cable of Witt, a dry cable, to have the binder threads as taught by Carter to be coated with a silicone wax emulsion finish as generally taught by Lochkovic such that the longevity of the fibers would be improved by adding such a friction reducing coating to the binder threads. In this way, wear between the fibers in the bundles and the binder threads is mitigated.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Witt and Carter as applied to claim 10 above and in view of Navé (US 6,167,178).

Witt and Carter do not disclose the use of tight-buffered optical fiber bundles in conjunction with the “loose tube,” or “loose buffered,” optical fiber bundles.

Navé teaches such a practice in col.4, lines 11-24. Here, Navé specifically states that it is known in the art to have tight and loose optical fiber bundles in one cable in order to provide a more compact structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include tight-buffered optical fiber bundles in the Witt/Carter fiber optic cable such that the cable can be made smaller.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Witt and Blew as applied to claim 16 above and in view of Navé.

Witt and Blew do not disclose the use of tight-buffered optical fiber bundles in conjunction with the “loose tube,” or “loose buffered,” optical fiber bundles.

Art Unit: 2882

Navé teaches such a practice in col.4, lines 11-24. Here, Navé specifically states that it is known in the art to have tight and loose optical fiber bundles in one cable in order to provide a more compact structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include tight-buffered optical fiber bundles in the Witt/Blew fiber optic cable such that the cable can be made smaller.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Witt as applied to claim 23 above in view of Navé.

Witt does not disclose the use of tight-buffered optical fiber bundles in conjunction with the “loose tube,” or “loose buffered,” optical fiber bundles.

Navé teaches such a practice in col.4, lines 11-24. Here, Navé specifically states that it is known in the art to have tight and loose optical fiber bundles in one cable in order to provide a more compact structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include tight-buffered optical fiber bundles in the Witt/Blew fiber optic cable such that the cable can be made smaller.

Allowable Subject Matter

Claims 1-9 and 28 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record neither teaches nor reasonably suggests an optical fiber cable that has a separation layer in contact with the bundle of optical fibers and the cable jacket as required by the combination of claim 1.

Claims 2-9 and 28 are allowed by virtue of their dependency.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wagman (US 6,546,175) and Gimblet (US 6,256,438) teach similar dry optical fiber cable constructions.

Art Unit: 2882


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (571) 272-2485.

The examiner can normally be reached on 9am - 6:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas R. Artman
Patent Examiner
February 13, 2004



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER